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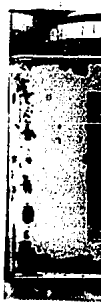

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SOURCE Newspapers as indicated.

DESCRIPTION OF NEW TECHNOLOGIES; NEED FOR MORE ECONOMY

NEW TECHNOLOGY FOR PRODUCTION OF TWIST DRILLS -- Moscow, Moskovskaya Pravda, 26 May 52

In 1931, Ruben Grigor'yevich Bagdat'yev, engineer, came to the Moscow Frezer Plant, where he was assigned to the drills shop. He immediately began thinking about ways of reducing the amount of metal wasted in chips in the manufacture of twist drills. Although he successfully improved the technology, milling helical grooves remained a difficult operation. The only solution was to replace this operation with another.

He tried forming and forging, which were unsuccessful because the accuracy of the drill was sacrificed. He then found that when plastic rods were twisted, spirals formed around their axes. He applied this principle to high-speed steel by heating it until it became flexible and soft. Twisting gave the rod accurate spirals. However, it was not a drill because it had no cutting edges.

Before twisting the steel rod, it had to be given a specific profile. Thus it became necessary to roll the metal before t sting.

A great deal of time was spent in designing miniature rolling machines for this shaped rolling. The machines were finally manufactured. At the same time, original twisting machines appeared. Thus, a new technological process was evolved.

There are three small rolling machines at the end of the drills shop. The operator inserts a steel rod into the heating apparatus where it becomes red hot instantly. In 20 seconds it is heated to 1,000 degrees. Using tongs, the worker feeds it to the pass of the first rolling machine, then the second, and the third. The steel rod becomes longer, and in shape resembles a thin toy track, on the side of which an edge has been pressed out. The metal can then be twisted

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Elizabeta Pletneva, an experienced worker, secures the rod on the twisting machine and switches on the transformer which is connected to the machine. Before the machine is turned on, the rod is reheated. This second heating also takes no more than 20 seconds. The machine is then switched on. On the left, the red hot rod is fastened tightly; on the right, it rotates with the spindle and twists into a tight spiral. The number of spirals depends on the required cross section of the future tool. The result is a 1½-meter rod with helical grooves, from which 10-12 drills can be made.

Twisting metal instead of milling has resulted in enormous advantages. Now there is almost no waste. Two drills can now be made from a blank formerly used for one. Flutes are formed 12 times as fast. Milling used to break down the structure of the metal. Rolling and twisting give the tool increased durability.

After the twisting, the rod is cut into pieces which are placed on two conveyer lines for further processing. This processing cycle has also been shortened because the labor-consuming welding of shanks has been replaced by pressing, which is more economical and gives better quality tools.

According to engineer Bagdat'yev, 1,500,000 drills were manufactured in 2 years by the new method. The new twist drills have already been extensively adopted in Soviet industry.

At the same time, a method for producing drills by means of knurling spiral grooves was developed in the drills shop. The originator of this method was A. I. Lapin, senior technologist of the shop, who used a special rolling-knurling machine.

The innovators put much effort into the development of the new technology. Engineer N. A. Yegorov designed the rolling equipment. Engineer N. F. Fesechko headed the bureau for developing transverse rolling methods. A. I. Grachev, former chief of the experimental shop and now chief designer of the plant; A. A. Badayeva, engineer of the All-Union Scientific Research Tool Institute; and N. G. Kotousov, manager of a group in a design bureau of the Ministry of Machine Tool Building, participated actively in the preparation of the new technology.

The engineer-innovators were awarded a Stalin Prize for developing the new technology for the production of twist drills.

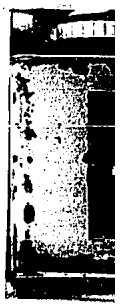
MAKE EVERY 20TH SLOTTING MACHINE OF SAVED METAL -- Yerevan, Kommunist, 22 Mar 52

A new technology for the manufacture of bushings and gears for machine tools has been introduced at the foundry of the Gomel' Machine Tool Building Plant imeni Kirov. The manufacture of bushings has been converted to centrifugal casting and the manufacture of gears, to chill casting.

This and other innovations are making it possible to manufacture every twentieth hydraulic slotting machine of saved metal.

EMPHASIZE NEED TO SAVE TOOL STEEL -- Kiev, Pravda Ukrainy, 1 Feb 52

The expenditures for tool production at machine building enterprises comprise more than 10 percent of all costs of products put out. From this it is plain to see how much a systematic and planned effort to save tool steel, high-speed steel, and hard alloys can contribute to production. A ton of high-speed steel costs 20 times as much as carbon steel, and a ton of hard alloy costs 200 times as much.



CAST TOOLS FROM STEEL WASTE -- Moscow, Trud, 21 May 52

Following the example set by the Khar'kov tractor builders, worn-out tools are being successfully restored at the Voronezh Locomotive Repair Plant. The production of cast tools from tool and high-speed steel waste has been organized. These tools are not in the least inferior in quality to forged items.

An electric-arc furnace with a capacity of 10 kilograms has been built at the plant for remelting waste. The furnace is loaded to full capacity with the sorted waste. Milled quartz and broken glass, 80 and 20 parts respectively by weight, serve as the flux. The amount of flux is 0.1 percent of the weight of the charge. Remelting takes 20-25 minutes, after which ferroalloys and crushed graphite are fed into the bath to compensate for the components (of alloy) and carbon burned out. Then the slag is removed, and the liquid steel is deoxidized with 2 grams of aluminum. The temperature of the steel during pouring is 1,570-1,600 degrees.

Blades for cutters, counterbores, and mills, and fitter's hammers, etc., are cast in chill molds; nut wrenches, twist drills, mills, sliding bars, etc., in sand molds.

Cast twist drills, 36 millimeters in diameter, cost 28 rubles less than forged ones. As a result of introducing cast tools made of steel waste, the plant saved about 100,000 rubles in 1951.

CRITICIZE LARGE LOSSES -- Moscow, Trud, 13 Jan 52

At the beginning of 1951, the Voroshilovgrad File Plant imeni Rud' of the Ministry of Machine Tool Building was not keeping up with its production program. It took 7 months to meet obligations assumed in the first quarter. Afterward, its position improved. The 1951 plan for output of products was completed on 15 December.

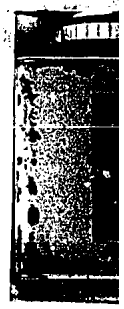
In 1951, losses due to rejects comprised 315,000 rubles; losses as a result of disrupting the plan for grades of parts, 1,136,000 rubles; losses due to idling of workers, 41,000 rubles.

The number of rejects was unusually large. It was not by accident that the ministry stipulated that the plant should reduce by 40 percent the output of poor-quality items in 1951 as compared with 1950. However, the assignment was not fulfilled. Plant personnel pledged that in 1951, 80 percent of all products produced would be first grade. Actually, the output of first-grade products comprised only 46-48 percent of the total.

GIVE 1951 PLANT PRODUCTION FIGURES -- Tbilisi, Zarya Vostoka, 9 Apr 52

In 1951, the Tbilisi Machine Tool Building Plant imeni Kirov fulfilled its year plan for gross production and commodity production 102.2 and 104.8 percent respectively. The output of products increased 30 percent, cost of production decreased 10 percent, and labor productivity increased 17.2 percent as compared with 1950.

Eight new original models of special machine tools for machining pipes were perfected, and nine special machine tools which had been perfected earlier were modernized. In 1952, the production of 1D63A machine tools has been converted to constant flow methods, as a result of which production of these machine tools has increased 31 percent.



Although the achievements have been outstanding, serious shortcomings still exist at the plant. Losses due to rejects reach 0.92 percent of the total production costs of all products put out. Labor turnover has not been eliminated.

New techniques developed in the past years have not been completely utilized. Standstill of machine tools and equipment continues, for various reasons.

The urgent task facing all personnel of the plant is to eliminate all of these shortcomings in the near future in order to complete successfully the considerably increased 1952 production plan.

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